



Division of Water Resources / State Revolving Fund Loan Program

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FINDING OF NO SIGNIFICANT IMPACT

Approval of Facilities Plan

Trenton (Gibson County), Tennessee

Loan Nos. CW4 2017-386 and SRF 2017-392

March 17, 2017

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by Section 511(c)(1) of the Clean Water Act, is the approval of a facilities plan prepared pursuant to Title VI of the Clean Water Act. In making this determination, the State Revolving Fund (SRF) Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The state's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the SRF Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Trenton has completed the facilities plan entitled "Clean Water State Revolving Fund Facilities Planning Document, Sewage Treatment Plant and Collection System Improvements" dated February 2016. The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Trenton. The proposed project consists of upgrades to the wastewater treatment plant to include the construction of a 1.6 million gallons per day sequencing batch reactor, mechanical bar screen with grit removal, and chlorine contact tank; and the conversion of the existing lagoons to aerobic sludge digesters. The project will also consist of flow monitoring, smoke testing, and closed circuit televising of the sewer collection system; rehabilitating the sewer lines by methods of pipe bursting, cured-in-place piping and/or replacement; and renovating the pump stations. The total estimated project cost is \$10,000,000. Two Clean Water State Revolving Fund loans have been requested for this project. This project will be funded with a \$3,876,158 loan and \$271,331 in principal forgiveness that will not have to be repaid by the City (CW4 2017-386). The second loan (SRF 2017-392) will be for \$6,123,842.

Attached is an Environmental Assessment containing detailed information supporting this proposed action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Mr. Sam R. Gaddipati, Environmental Manager
Division of Water Resources, State Revolving Fund Loan Program
William R. Snodgrass TN Tower, 12th Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243

or call or e-mail (615) 532-0462 or sam.gaddipati@tn.gov.

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A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The City of Trenton has completed the facilities plan entitled "Clean Water State Revolving Fund Facilities Planning Document, Sewage Treatment Plant and Collection System Improvements" dated February 2016. The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Trenton. The proposed project consists of upgrades to the wastewater treatment plant (WWTP) to include the construction of a 1.6 million gallons per day (MGD) sequencing batch reactor (SBR), mechanical bar screen with grit removal, and chlorine contact tank; and the conversion of the existing lagoons to aerobic sludge digesters. The project will also consist of flow monitoring, smoke testing, and closed circuit televising (CCTV) of the sewer collection system; rehabilitating the sewer lines by methods of pipe bursting, cured-in-place piping and/or replacement; and renovating the pump stations. The facilities planning area and project location are indicated on Figure 1 of this Environmental Assessment.

FUNDING STATUS

The facilities described above comprise the scope of Loan Nos. CW4 2017-386 and SRF 2017-392 scheduled for funding in fiscal year 2017. The estimated project costs are summarized in the following tabulation:

<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>
Administrative & Legal	150,000
Bidding & Award	10,000
Design Fees	500,000
Engineering Fees	350,000
Construction	8,030,000
Contingencies	960,000
TOTAL	10,000,000
CW4 2017-386 Loan	3,876,158
Amount Designated for Principal Forgiveness (Will not have to be repaid)	271,331
SRF 2017-392 Loan	6,123,842

Two CWSRF loans have been requested for this project. This project will be funded with a \$3,876,158 loan and \$271,331 in principal forgiveness that will not have to be repaid by the City (CW4 2017-386). The second loan (SRF 2017-392) will be for \$6,123,842.

B. EXISTING ENVIRONMENT

The City of Trenton's Planning Area is located in Gibson County in west Tennessee. A discussion of existing environmental features in the area includes the following:

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SURFACE WATERS

Surface waters within the proposed planning area include the North Fork of the Forked Deer River, Cain Creek, and their tributaries. Designated uses for the North Fork of the Forked Deer River and Cain Creek include fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. The City of Trenton's WWTP discharges treated effluent at the confluence of Cain Creek to the North Fork of the Forked Deer River.

GROUNDWATER

Groundwater in Trenton's Planning Area occurs in the lower Wilcox Aquifer, a broad structural syncline that includes several water bearing layers of sand and gravel from 50 to 2,600 feet below the surface. The lower Wilcox aquifer consists of sands deposited in fluvial conditions similar to those in the floodplain of the Mississippi River and is the lowermost aquifer in the tertiary rocks in the Mississippi Embayment. It is underlain by a thick sequence of marine clay beds known as the Midway confining unit. This confining unit hydraulically separates the lower aquifer from underlying aquifers in Cretaceous rocks, except locally where the confining unit is thin and is recharged by precipitation on aquifer outcrop areas and by downward leakage from overlying aquifers. Drilled water wells vary from 180 to 200 feet below the surface. The water quality is considered to be generally good. The City of Trenton obtains its drinking water from two drinking water wells.

SOILS

The Trenton Planning Area lies in the Memphis-Grenada-Loring Soil Association. The Memphis soils consist of well-drained, level to moderately steep, silty soils on broad ridgetops and side slopes. These soils are formed in loess that is 3.5 to 15 feet thick and overlies sands and clays of the Coastal Plain. The surface layer is brown silt loam, and the subsoil is brown to reddish-brown silt loam or silty clay loam. The Grenada soils consist of deep, moderately well drained, level to strongly sloping soils on uplands, and terraces. These soils are formed in thick loess. The Loring soils consist of deep, well drained to moderately well drained soils on uplands. These soils are formed in thick loess on level to moderately steep, broad ridgetops and side slopes. The surface soil is brown silt loam, and the subsoil is reddish-brown to strong-brown silty clay loam.

TOPOGRAPHY

The Trenton Planning Area lies within the Mississippi Alluvial Plain in the Gulf Coastal Plains Physiographic Region, a large geographic land area from the Gulf of Mexico northward to southern Illinois. The topography of the planning area is sloping to gently rolling terrain. Local elevations range in altitude from near sea level in the north to about 310 feet above mean sea level (MSL) at the southern edge of the planning area.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers exist in the Trenton Planning Area. Numerous unique agricultural, scientific, cultural, ecological, or natural areas exist in the planning area. However, none are known to exist in the project area.

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C. EXISTING WASTEWATER FACILITIES

The City of Trenton owns and operates a 1.6 MGD WWTP and wastewater collection system. The Trenton facility is the only municipal WWTP in the planning area. The WWTP, built in 2006, consists of an influent pumping station, a two-cell lagoon, and a chlorine contact chamber. The wastewater is pumped from the influent pump station to the first cell of the lagoon, a complete mix cell containing four surface aerators; and then to the second cell, a complete mix cell containing four surface aerators. After aeration, the treated wastewater is disinfected at the chlorine contact chamber with post-aeration and then transported by a gravity outfall to the confluence of Cain Creek to the North Fork of the Forked Deer River.

The WWTP currently operates under the National Pollutant Discharge Elimination System (NPDES) Permit No. TN0078271 and includes the following parameters and effluent limitations:

<u>PARAMETER</u>	<u>EFFLUENT LIMITATIONS</u>
CBOD ₅	15 milligrams per liter (mg/l)
Suspended Solids	47 mg/l
E.Coli	126/100 colonies per milliliter
Dissolved Oxygen	6.0 instantaneous minimum
Ammonia as N (May 1-October 31)	3.0 mg/l
Ammonia as N (Nov. 1-April 30)	10 mg/l
Chlorine Residual, Total	0.08 instantaneous maximum
Settleable Solids	1.0 daily maximum (milliliter/liter)
pH	6.0-9.0 (Standard Units)

The Trenton WWTP has not been able to consistently meet the required discharge limitations as set forth in their NPDES permit. The WWTP has violated the parameters for CBOD₅, Suspended Solids, Ammonia, and Settleable Solids. Flows into the WWTP have frequently exceeded the design capacity during heavy rainfall events resulting in several Notices of Violations (NOV).

Most of the City of Trenton's wastewater collection system was constructed prior to 1975. The City's wastewater collection system consists of approximately 26 miles of 6-inch through 21-inch diameter gravity sewers, approximately 3.5 miles of force main, and 7 pumping stations with a capacity range from 75 to 125 gallon per minute, and approximately 675 manholes. Most of the collection system piping material is comprised of approximately 90% vitrified clay and concrete; and approximately 10% PVC.

Excessive infiltration and inflow (I/I) has occurred within the wastewater collection system because of its age and piping material. During wet weather conditions, the collection system and pump stations do not have sufficient capacity resulting in sanitary sewer overflows (SSOs).

Currently, flow monitoring is underway to begin to identify which basins are impacted the most by I/I. A Corrective Action Plan for sewer system rehabilitation will be drafted to identify and prioritize sewer basins and to reduce I/I and eliminate overflows.

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D. NEED FOR PROPOSED FACILITIES AND ACTIONS

As mentioned in Section C, the City of Trenton is experiencing significant I/I and SSOs in its wastewater collection system. The SSOs can be associated with several causes, such as aging and deteriorating pipelines. In addition, rain water overfills the creeks and waterways allowing water to collect within the City's low lying areas. The WWTP has experienced bypasses of wastewater flows from its treatment facilities as a result of I/I and SSOs. Trenton's WWTP has an average daily flow of 0.75 MGD; however, during heavy rainfall events, the flow will peak over 6 MGD. The high amounts of I/I is a strain on the sewer collection system and hydraulically overloads the WWTP. As a result of the high flows, the Trenton WWTP has violated its NPDES discharge permit resulting in NOVs. Furthermore, Cain Creek to the North Fork of the Forked Deer River is on the Tennessee Department of Environment and Conservation's (TDEC) 2016 Draft 303(d) List of Impaired Waters because of water quality standards that have resulted in the degradation of the stream. The Trenton WWTP cannot meet these parameters with the facilities as they now exist. The construction of the SBR is needed to prevent further degradation to the confluence of Cain Creek to the North Fork of the Forked Deer River and so that the WWTP can meet discharge limitations in order to improve surface water conditions. This project will be beneficial to the environment because the City of Trenton desires to protect public health and the environment by controlling the method of sewage treatment and providing permitted treatment on a long-term basis.

EXISTING AND PROJECTED FACILITY CONDITIONS

<u>POPULATION</u>	<u>EXISTING (2017)</u>	<u>PROJECTED (2037)</u>
Trenton	4,550	4,890
Percent Sewered	100%	100%

<u>CITY/UD WWTP FLOWS (MGD)</u>	<u>EXISTING (2017)</u>	<u>PROJECTED (2037)</u>
Residential	0.45	0.75
Commercial	0.1	0.2
Industrial	0.1	0.2
Infiltration/Inflow *(Excluding heavy rainfall events)	0.1*	0.1
TOTAL	0.75	1.25

E. ALTERNATIVES ANALYSIS

Several alternatives, including a "No-action" alternative, were evaluated for wastewater treatment and collection system in the February 2016 facilities plan. A summary discussion of the evaluation of each alternative for wastewater treatment plant improvements and the selection of the recommended plan follows:

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NO ACTION

The "No-action" approach was not a viable alternative. The state and federal governments have issued discharge limitations that must be met in order to maintain compliance. These parameters cannot be met by the facilities as they now exist. Therefore, some action must be taken to protect the environment and public health, and this alternative was rejected.

LAND APPLICATION FOR TREATMENT AND COLLECTION SYSTEM REHABILITATION

This alternative consists of the construction of a headworks structure, influent pump station, retrofit effluent pumps at the existing chlorine contact chamber, a land application site, a storage lagoon, and effluent pump station for the land application site. The effluent from the contact chamber is transferred to the land application site by spray irrigation. Final biological treatment is done by bacteria residing in the soil that removes the remaining biological pollutants before the effluent is mixed with existing groundwater. This alternative will also consist of flow monitoring, smoke testing, and CCTV of the sewer collection system; rehabilitating the sewer lines by methods of pipe bursting, cured-in-place piping and/or replacement; and renovating the pump stations. This alternative was not the most cost effective and was rejected.

CONSTRUCTION OF AN OXIDATION DITCH AND COLLECTION SYSTEM REHABILITATION

This alternative consists of the construction of two oxidation ditches, headworks, influent pumps, two secondary clarifiers, a return and waste sludge pumping station, new chlorine contact chamber, effluent pumps, and the conversion of the existing lagoon cells to aerobic sludge digesters. The sludge from the aerobic sludge digesters will then be sent to dewatering boxes, and transported to a landfill. This alternative will also consist of flow monitoring, smoke testing, and CCTV of the sewer collection system; rehabilitating the sewer lines by methods of pipe bursting, cured-in-place piping and/or replacement; and renovating the pump stations. This alternative was not the most cost effective and was rejected.

CONSTRUCTION OF A SBR AND COLLECTION SYSTEM REHABILITATION

This alternative consists of upgrades to the wastewater treatment plant to include the construction of a 1.6 MGD SBR, mechanical bar screen with grit removal, and chlorine contact tank; and the conversion of the existing lagoons to aerobic sludge digesters. This alternative will also consist of flow monitoring, smoke testing, and CCTV of the sewer collection system; rehabilitating the sewer lines by methods of pipe bursting, cured-in-place piping and/or replacement; and renovating the pump stations. This alternative was the most cost effective and selected.

F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be the improvement of water quality for the City of Trenton, and the protection of public health and the environment.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these

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impacts will be required; however, many of these minimization measures will be temporary and only necessary during construction. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It will contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It will include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

Future discharges from the upgraded/modified Trenton WWTP will be in compliance with all Waste Load Allocations (WLAs) assigned in any relevant approved/established Total Maximum Daily Loads (TMDLs) that have been developed for this watershed. The proposed action will also comply with all relevant Phase I and/or Phase II stormwater regulations, including ensuring adequate sediment control and implementation of best management practices.

Acquisition of applicable United States Army Corps of Engineers (USACE) will be required prior to the approval of construction plans and specifications.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on October 10, 2016, at 6:00 p.m., local time. The selected plan for wastewater collection and treatment and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

The annual median household income for the City of Trenton is \$24,999. The current sewer user rate for the typical residential user (5,000 gallons per month) increased from \$25.00 to \$30.00 per month on October 1, 2016 and will increase to \$36.00 per month on October 1, 2017. The total incremental annual cost for this project is \$132.00, which is approximately 0.53 percent of the current annual household median income.

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Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development (ECD)
3. TDEC, Division of Air Pollution Control (DAPC)
4. Tennessee Department of Transportation (TDOT)
5. Tennessee Historical Commission
6. TDEC, Division of Archaeology (DA)
7. Tennessee Geological Survey
8. TDEC, Division of Solid Waste Management (DSWM)
9. TDEC, DWR
10. Tennessee Wildlife Resources Agency (TWRA)
11. USACE
12. United States Fish and Wildlife Service (USF&W)
13. City of Trenton
14. Gibson County
15. J.R. Wauford & Company

H. SPECIAL CONDITIONS

The State Revolving Fund loan agreement will have the following special conditions:

1. The City of Trenton shall obtain applicable Section 10/404 Permits from the USACE to meet the requirements of wetlands protection and stream-crossing statutes. A letter from the Corps stating that the permits are not needed will obviate this requirement.